

EL TORO MARINE CORPS AIR STATION

IRVINE, CALIFORNIA

Engineering Field Division/Activity: SOUTHWESTDIV

Major Claimant: CMC

Size: 4,855 Acres

Funding to Date: \$56,100,000

Estimated Funding to Complete: \$166,390,000

Base Mission: Marine Corps primary jet fighter facility on the West Coast; provides materials and support for aviation activities of the Marine Corps; provides housing for Marine Corps personnel

Contaminants: POLs, PCBs, pesticides/herbicides, trichloroethylene, volatile organic compounds



Number of Sites:

CERCLA: 24
RCRA Corrective Action: 1
RCRA UST: 18
Total Sites: 43

Relative Risk Ranking of Sites:

High: 21
Medium: 5
Low: 16
Not Evaluated: 1
Response Complete: 0
Total Sites: 43

NPL

BRAC III

EXECUTIVE SUMMARY

Marine Corps Air Station (MCAS) El Toro is located in Orange County, California about eight miles southeast of the City of Santa Ana and 12 miles northeast of the City of Laguna Beach. MCAS El Toro served as the center for Marine aviation operations on the Pacific Coast and was comprised of hangars, flight line areas, maintenance areas, fueling facilities, a clinic, a golf course and housing areas. Past operations that contributed to contaminated sites on the facility include: aircraft maintenance, vehicle maintenance, degreasing processes, painting, fuel storage, wash racks, aircraft refurbishing, sewage treatment, solid waste incineration and disposal, and fire-fighting training. Current operations include pollution prevention technologies to prevent further contamination. During routine water quality monitoring in 1985, the Orange County Water District (OCWD) discovered the organic solvent TCE in an irrigation well located about 3,000 feet west of the Station. Subsequent investigations by OCWD concluded that the organic solvent TCE and other volatile organic compounds (VOCs) detected in groundwater had originated at MCAS El Toro. Past operations and disposal practices are believed to have contaminated the groundwater in the vicinity of the Station. As a result of these findings the Station was placed on the National Priorities List (NPL) in February 1990. A Federal Facility Agreement (FFA) for MCAS El Toro was signed in October 1990.

Most of the land northwest of MCAS El Toro is used to grow oranges and other agricultural crops. Land to the south and northeast has been developed as commercial, light industrial and residential. Surface runoff and infiltration go to storm drainage channels and naturally occurring washes, sometimes crossing agricultural land, and eventually draining to San Diego Creek which feeds the Upper Newport Bay Ecological Reserve, a coastal wetlands. Contaminant migration to the Upper Newport Bay Ecological Reserve and duck ponds on San Diego Creek which are used by wildlife is a concern. Contaminants can potentially migrate to agriculture and drinking water wells located downstream from El Toro.

The Technical Review Committee (TRC) was converted to a Restoration Advisory Board (RAB) in January 1994. The RAB consists of over 50

members who meet on a monthly basis. A Community Relations Plan (CRP) was completed and two information repositories were established in FY91. A total of six fact sheets have been released.

Currently, 43 sites are in the study phase of which 24 are CERCLA sites. Twenty-two CERCLA sites were evaluated during the Phase I Remedial Investigation (RI), which was completed in May 1993. The final work plan for the Phase II Remedial Investigation/Feasibility Study (RI/FS) was prepared in July 1995. Two additional sites were established for investigation in Phase II, bringing the total number of CERCLA sites to 24. Three removal actions have been completed and two are underway. All RCRA Solid Waste Management Units (SWMUs) of concern have been grouped into one site which is in the RCRA Facility Investigation (RFI) phase. There are 18 Underground Storage Tank (UST) sites.

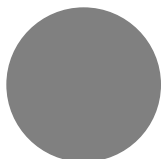
In the future, at the CERCLA sites, RI/FSs will be completed for 23 sites in FY96. Records of Decision (RODs) will be completed at one site in FY96 and six sites in FY97. Engineering Evaluation/Cost Analysis (EE/CAs) will be completed for seven sites in FY96. Implementation of Corrective Measures is scheduled to be complete at the RCRA site in FY97. A removal action consisting of soil removal is expected to be completed for one UST site in FY97.

In 1993, MCAS El Toro was included in the Base Realignment and Closure (BRAC III) program. Operational closure date is targeted for July 1999. Approximately 63% of the property has been classified as requiring no further remediation before transfer. However, due to the distribution of contaminants, very few if any parcels are available for transfer. MCAS El Toro is currently working on a proposed agreement with the OCWD for the future Irvine Desalter project and other projects to mitigate the organic solvent TCE contamination in groundwater. This proposed joint effort, however, has been put on hold due to the Orange County bankruptcy. MCAS El Toro is now considering a Department of the Navy (DON) stand alone project which would involve cleanup of contaminated groundwater by pump and treat and reinjection. This issue is still to be resolved and has delayed the ROD for Site 18 (Regional Groundwater).

A success story is the UST Tiger Team which was formed to address UST compliance and closure issues. The Tiger team has identified 70 inactive USTs to be removed in 1995 and is currently developing a strategy to remove the remaining inactive USTs in 1996. In addition, the Tiger Team is developing a scope of work for necessary remedial actions at various former UST sites.

Current Status Of Sites

■ **Studies Underway** 43
 ■ **Cleanups Underway** 0
 □ **Response Complete** 0



100%

TOTALS 43

EL TORO MCAS RELEVANT ISSUES

ENVIRONMENTAL RISK



HYDROGEOLOGY - Under MCAS El Toro are well-draining silty clay loams and fine sandy loams with moderate to high infiltration rates. Downgradient, in the Irvine Groundwater Subbasin, groundwater is used for irrigation. Contaminants can potentially migrate to drinking water wells in the middle aquifer several miles downstream from El Toro. Surface drainage near MCAS El Toro generally flows southwest. Off station drainage from the hills and upgradient irrigated farmlands combines with on-station runoff and flows into four main drainage channels. All four drainages become confluent with San Diego Creek southwest of the station. San Diego Creek feeds the Upper Newport Bay Ecological Reserve, a coastal wetlands.



NATURAL RESOURCES - Approximately 75% of the native habitats of MCAS El Toro have been cleared for agriculture, housing and station operations. Native vegetation and animal species are primarily condensed in an approximately 1,200-acre area located in the northeast portion of the station. The natural habitat located in this portion of the station is used by many wildlife species. The area is heavily used by numerous wintering avian species, including neotropical birds and birds of prey. In addition to bird species, reptiles and mammals are also present in the natural area as well as a smaller number of amphibian species. Only one species, the California gnatcatcher, is listed as threatened under the Federal Endangered Species Act.

The Upper Newport Bay Ecological Reserve, into which the San Diego Creek flows, was established in 1975 to preserve and enhance the saltwater marsh ecosystem. Eight species classified by California as either rare or endangered are dependent on the Upper Newport Bay. A series of marshy wildlife refuges are located immediately adjacent to San Diego Creek. Many plant and animal species settle in this wildlife refuge.



RISK - Baseline Human Health Risk Assessments and Ecological Risk Assessments are being conducted as part of the Remedial Investigations (RIs). Twenty-one sites were ranked as high relative risk in the Department of Defense (DOD) Relative Risk Ranking System. The high ranking was due to contaminated groundwater for seven of the sites, contaminated soil for eleven of the sites, contaminated soil and groundwater for two of the sites and contaminated surface water effecting ecological receptors for one site.

REGULATORY ISSUES



NATIONAL PRIORITIES LIST - MCAS El Toro was included on the National Priorities List (NPL) on 21 February 1990 based on a Hazard Ranking System (HRS) score of 40.83. The NPL listing was due to the presence of volatile organic compound (VOC) contamination in the groundwater.



LEGAL AGREEMENTS - A Federal Facility Agreement (FFA) between the Department of the Navy (DON), the EPA, the California EPA (Cal-EPA) Department of Toxic Substances Control (DTSC), and the California Regional Water Quality Control Board (CRWQCB), Santa Ana Region, was signed in October 1990. The agreement established lead and support agency roles, general scopes of work, schedules, and regulatory review turnaround times for key project milestones and specified that investigations begin with RIs and proceed to Records of Decision (RODs). The Installation Restoration Program (IRP) sites were grouped into three Operable Units (OUs): OU 1 includes contaminated regional groundwater, on and off Station (Site 18); OU 2A includes sites believed to be contributing to the regional VOC plume emanating from the southwest portion of station (Sites 24 and 25); OU 2B is station landfills (Sites 2 and 17); OU 2C is station landfills (Sites 3 and 5); OU 3 includes all remaining CERCLA sites (Sites 1, 4, 6-16 and 19-22).

In 1985, the OCWD discovered the organic solvent TCE in two off-site wells and initiated an investigation to determine the source and extent of contamination. In July 1987, the CRWQCB, Santa Ana Region, issued a Cleanup and Abatement Order that required MCAS El Toro to submit a Plan of Action (POA) to address off-site groundwater contamination. This became Regional Groundwater Investigation (Site 18).



PARTNERING - The BRAC Cleanup Team (BCT) has established a partnering agreement and team charter that incorporates the latest and most efficient management techniques to coordinate installation restoration (IR) activities. A team building seminar was held in October 1994.

COMMUNITY INVOLVEMENT



RESTORATION ADVISORY BOARD - A Technical Review Committee (TRC) was formed in 1990 and converted to a Restoration Advisory Board (RAB) in January 1994. The RAB consists of over 50 members who meet on a monthly basis. All RAB meetings are open to the public. Technical presentations to assist RAB members in understanding complex environmental issues have been provided on an ongoing basis.



COMMUNITY RELATIONS PLAN - A Community Relations Plan (CRP) was completed in April 1991 and the first Fact Sheet was completed in November 1991. A total of six fact sheets have been released. Seventeen public meetings have been held (includes RAB meetings).



INFORMATION REPOSITORY - In 1991, an Information Repository was established at the Heritage Park Regional Library in Irvine. An Administrative Record was also established in 1991. Administrative Record files are located at the El Toro BRAC Environmental Office and at Southwest Division (SWESTDIV), Naval Facilities Engineering Command (NAVFAC) in San Diego, California.

BASE REALIGNMENT AND CLOSURE



BRAC - In 1993, MCAS El Toro was included in the Base Realignment and Closure (BRAC III) program. The closure date is scheduled for July 1999.



BRAC CLEANUP TEAM - A BRAC Cleanup Team (BCT) was established in October 1993. The BCT consists of representatives from the United States Marine Corps/Navy (USMC/Navy), Cal-EPA DTSC, and EPA Region IX.



DOCUMENTS - The latest BRAC Cleanup Plan (BCP) update will be completed in March 1996. The BCP will be updated again in March 1997. The Environmental Baseline Survey (EBS) was completed in April 1995. In the EBS, the Environmental Condition of Property was assessed according to Department of Defense (DOD) and American Society for Testing and Materials (ASTM) guidelines and the results are shown in the chart below. The final EBS identified 63% of the property as Category 1. EPA and Cal-EPA DTSC have given 100% concurrence.

Environmental Conditions of Property Classification						
1	2	3	4	5	6	7
2,982 acres	5 acres	5 acres	0	0	1,084 acres	662 acres



LEASE/TRANSFER - It is anticipated that the Finding of Suitability to Transfer (FOST) or Finding of Suitability to Lease (FOSL) activities will start in 1997.

EL TORO MCAS



REUSE - The County of Orange and Cities of Irvine and Lake Forest formed the El Toro Reuse Planning Authority (ETRPA) in March 1994. In January 1995, the County withdrew from the ETRPA to pursue formation of a new reuse committee. In April 1995, the County of Orange was recognized as the new Local Redevelopment Authority (LRA). A reuse plan is expected to be completed by October 1996. In the absence of a reuse plan for the Station, reuse parcels have been identified according to the Station's existing land use presented in the MCAS El Toro Master Plan. In the November 1994 election, voters passed Measure A which proposed to make the installation into an airport. The issue will be voted on again in the future.



FAST-TRACK INITIATIVES - The MCAS El Toro team is implementing various fast track procedures such as using mobile laboratories for accelerated analytical turnaround times, and in-field decision making. Current removal actions are using industrial cleanup standards and the team will consider using industrial cleanup standards for final remedies. The team is using the latest immunoassay field screening kits to reduce analytical costs while maintaining Data Quality Objectives (DQOs). In addition, the team continues to evaluate other opportunities and methods to accelerate cleanup such as presumptive remedies, removal actions, and new technologies that may be applicable for MCAS El Toro site specific conditions.

HISTORICAL PROGRESS

FY82

Site 1 - An Interim Remedial Action (IRA) was completed in FY82 with the incineration of excess ordnance compounds at the Explosive Ordnance Disposal Range.

FY86

Sites 1-17 - An Initial Assessment Study (IAS) (equivalent to a Preliminary Assessment (PA)), completed in May 1986, identified 17 potentially contaminated sites at MCAS El Toro. Seven sites (Sites 6-8, 10, 12, 13 and 15) were found not to pose a threat to human health or the environment, and No Further Action (NFA) was recommended for these sites. Nine sites (Sites 1-3, 5, 9, 11, 14, 16 and 17) were recommended for further investigation. Remedial measures were recommended for Site 4.

Site 18 - A Regional Groundwater Investigation, was added after an investigation by the Orange County Water District (OCWD) determined that the organic solvent (TCE) and other volatile organic compounds (VOCs) detected in groundwater outside the Station had originated at MCAS El Toro.

Sites 19-23 - The EPA's review of the IAS and further investigations by the Navy resulted in five additional sites being recommended for further action. JP-5 jet fuel spills and leaks occurred from fuel bladders at the Aircraft Expeditionary Refueling Site (Site 19); waste oils, solvents, and waste solvent sludge at the Hobby Shop Building 626 (Site 20); spills and leaks from stored drums of chemicals at the Material Management Group Building 320 (Site 21); JP-5 spills and leaks from fuel bladders at the Tactical Air Fuel Dispensing System (TAFDS) (Site 22); and industrial wastes containing heavy metals around abandoned-in-place sewer lines from the old Wastewater Treatment Plant (WWTP) (Site 23).

Sites 1-23 - Meetings between the state, the EPA and the Department of the Navy (DON) in September 1986 resulted in these sites being recommended for further investigation in the Installation Restoration Program (IRP).

FY88

UST 1 - As a result of a refueling system upgrade, Underground Storage Tank (UST 1), was added to the IRP in 1988. As part of the system upgrade, a Soil Characterization Study was conducted at Tank 398 (UST 1) and petroleum hydrocarbon contamination was identified in soil below the tank. The Orange County Health Care Agency was notified and a report of an unauthorized leak was submitted by the DON in September 1988. The County directed MCAS El Toro to conduct an investigation to determine the extent of contamination.

Site 1 - An IRA consisting of access control was installed in July 1988 at the Explosive Ordnance Disposal Range and is expected to be in place until FY01.

FY89

Site 18 - An IRA was implemented at the Regional Groundwater Investigation Site that involved retrofitting perimeter monitoring well pumps, conducting a treatability study to determine the feasibility of using activated carbon to remove contaminants from groundwater, and constructing an activated carbon treatment plant. The plant began operation in June 1989 and was used to treat the organic solvent TCE-contaminated groundwater pumped from three existing wells to below detection limits. System operation stopped in 1993 on approval of the Santa Ana Region, California Regional Water Quality Control Board (CRWQCB) since the site was being handled in an ongoing Remedial Investigation/Feasibility Study (RI/FS).

UST 1 - A Preliminary Site Assessment was conducted to determine the lateral and vertical extent of soil contamination at the site.

FY90

Site 18 - A Site Inspection (SI) was completed at the Regional Groundwater Investigation Site and found significant levels of the organic solvent TCE in shallow groundwater at the base boundary and limited contaminant migration off site. In April 1989, the OCWD also completed an off-site groundwater investigation and documented the existence of a large dilute plume of the organic solvent TCE in groundwater that extended over three miles northwest from the base.

FY92

UST 1 - A Site Assessment was completed. Significant concentrations of petroleum hydrocarbons, benzene, toluene, ethylbenzene, and xylene (BTEX) were found in groundwater.

FY93

SWMU 1 - An RCRA Facility Assessment (RFA) was completed. A Visual Site Inspection, completed in August 1991, identified 289 potential solid waste management units (SWMUs) at MCAS El Toro, including approximately 30 sites that the CRWQCB, Santa Ana Region, had requested be further investigated. One hundred and fifty-seven SWMUs were recommended by the DON for further investigation. Field work was initiated in September 1992. The RFA was completed in March 1993. SWMUs of concern have been grouped into SWMU 1 for corrective measures.

UST 1 - An RI/FS was completed. Four remedial options were identified and a combination of the options was recommended to remediate the contamination.

FY94

Site 2 - Construction was completed at the Magazine Road Landfill involving the installation of slope stabilization.

PROGRESS DURING FISCAL YEAR 1995

FY95

OUs 2A, 2B, 2C and 3 (Sites 1-17, 19-22, 24 and 25) - Work plans were completed for Phase II of the RI/FS.

SWMU 1 - An RFA amendment was completed.

EL TORO MCAS PLANS FOR FISCAL YEARS 1996 AND 1997

FY96

OUs 2A, 2B, 2C and part of OU 3 (Sites 2, 3, 5, 6, 8-10,12,15-17, 21, 22, 24 and 25) - An RI/FS will be completed.

OU 1 (Site 18) - A proposed plan and draft ROD will be completed.

UST 18 - Removal action consisting of soil removal will be initiated. Completion is expected in FY01.

Sites 4, 7, 11, 13, 14, 19 and 20 - Seven OU 3 sites will not be included in the Phase II Remedial Investigation (RI). Draft Engineering Evaluation/ Cost Analysis (EE/CAs) were submitted for public review in October 1995. Action memoranda are scheduled to be issued in the first half of 1996 and the final EE/CAs are scheduled to be completed by mid-1996.

FY97

Sites 4, 6, 11-16, 19-22, 24 and 25 - An RD will be started.

UST 1 - Corrective Action (CA) consisting of soil removal will be completed. A free product pilot study and a vapor extraction pilot study of the vadose zone is also underway and expected to be completed in FY97. In addition, several pump tests have been conducted.

UST 12 - Removal action consisting of soil removal will be initiated. Completion is expected in FY01.

SWMU 1 - Corrective Measures Implementation (CMI) will be completed.

OUs 2A, 2B, 2C and 3 (Sites 1-17, 19-22, 24 and 25) - RODs will be completed.

PROGRESS AND PLANS

CERCLA	FY94 and before	FY95	FY96	FY97	FY98	FY99	FY00	FY01 and after
PA	24							
SI	1							
RI/FS			23					1
RD			1	14	8			1
RA						13	5	6
IRA	2(2)	1(1)				1(1)	1(1)	4(7)
RC						13	5	6
Cumulative Response Complete						54%	75%	100%
RCRA CA	FY94 and before	FY95	FY96	FY97	FY98	FY99	FY00	FY01 and after
RFA	1							
RFI			1					
CMS			1					
DES								
CMI				1				
IRA								
RC				1				
Cumulative Response Complete				100%				
UST	FY94 and before	FY95	FY96	FY97	FY98	FY99	FY00	FY01 and after
ISC								
INV					1		1	1
CAP								
DES			3	3	6	2	3	1
IMP				1	1	5	3	8
IRA				1(1)	1(1)	5(5)	3(3)	8(8)
RC				1	1	5	3	8
Cumulative Response Complete				6%	11%	39%	56%	100%